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Analyzing, Grading and Valuing Operations in a Modern Manufacturing Organization

By A. B. RICH

The Dennison Manufacturing Company

THE following is a description of the procedure followed by a Massachusetts corporation in wage determination. So much of the plan is dependent upon the company's policies and the conditions of work provided, that it is impossible to judge as to its merits without some portrayal of these two factors. The determination of wages of foremen and other members of the management involves special consideration, so this article will deal only with the plan followed in regard to factory and clerical employees.

The factory itself is highly organized. By this is meant not so much that there is an extreme subdivision of labor, as that a clean-cut definition has been made of the responsibilities of the management, of its various members, and of the responsibilities and the nature of the work of each of its employees.

For the most part production is planned by members of the organization who have been trained in this function of management, thus leaving the foremen and his assistants more free to attend to problems of personnel. As a consequence, working conditions are much more attractive than they are apt to be when the planning of work is left to the foreman and his assistants. In the majority of operations, methods of work have been most carefully analyzed and the details of the jobs are specified, as are also the working conditions and materials. The tools, equipment and materials described in the specifications are so far as possible the best obtainable for the task and the product, and it is "somebody's job" to see that all these requirements are

according to standard, and provided in the place and at the time they are needed. The practice of issuing job tickets with these specifications and instructions for all work done, is accepted as a principle, and is being extended as rapidly as possible throughout the organization.

There are limitations, of course,—in human ability, in the planning operations and in materials provided. There is the "innate perversity of inanimate things"—no one realizes this better than the engineer who makes it his work to reduce these limitations in some measure. But the extent to which work and working conditions may be improved by men trained in research in various fields is far beyond the average practice of today.

This company has built up its business on a reputation for a fine quality of product, and this tradition of quality has influenced general working conditions in the plant to a marked degree. The neatness and comfort of work rooms and the type of people in the company's employ are such as would be expected in consequence of this insistence upon quality during a great many years' operation.

THE COMPANY'S PERSONNEL POLICIES

For the past twelve years this company has been striving to prevent seasonal employment with the consequent "lay-off" of employees during dull periods, and the unemployment due to business depressions. It has also set aside part of its profits to be used as an "unemployment fund." The "unemployment fund," however, is

not considered in any degree so important as the *prevention* of lay-offs because of either seasonal or cyclic depressions in business. This prevention is accomplished by an analysis of the facts, and by planning to balance the demands made upon the factory for the full calendar year through various seasons. So far as is known, there is no one plan that will accomplish this result and it is believed that in every case individual treatment is necessary. In this company this work is accepted as a responsibility of the selling organization, so the members of the management who have charge of sales and merchandising place orders for items of stock goods, devise articles to keep the factory busy during off seasons, increase their sales force to maintain a fair amount of business during a general depression, and in other ways guard against the unemployment and loss of skilled employees.

This company has felt the need of the advice and criticism that its employes may give to the management, and in consequence for the last few years the employes have elected a Works Committee under rules and by-laws drawn up by a committee of the employes (which rules and by-laws were accepted by the management without alteration). The Works Committee, as will be noted hereafter, is always a *potential* and often an active factor in the determination of wages. Furthermore, the presence within the organization of a Works Committee whose responsibility it is to see that the employes, individually and as a whole, have a share in management, is evidence of the spirit of the company and of the reputation it has in the eyes of applicants for employment.

The company believes that each employe has a right to be treated as an individual and not as an undifferentiated unit of a group. Every possible means

is used to determine the ability and standing of each individual in relation to that of every other individual engaged in similar work. This is equally true whether employes are paid on a weekly, hourly, or production basis. In cases where productivity is measured and wages vary directly with production, the payment method is devised to insure the greatest amount of individual variation. An hourly base wage is paid from a minimum starting figure, increasing as the employe's record shows improvement in quality of work, greater versatility (ability to work at a variety of operations), or greater productivity. Increases are made as soon as the records justify them. There are, consequently, no flat rates for any given kind of work, applying indiscriminately to all employes engaged at the same task.

SERVICE RECORDS AND PROMPT RECOGNITION OF ABILITY

Records of employes are kept in nearly every division of the factory. These are in various stages of development; some are more thorough and in more active use than others. For this article it is proposed to describe a division where most advanced steps have been taken in recording the individual standing of employes. Here a service record is kept of each employe, showing attendance, earnings and production, pay changes and rating, average piece earnings, as well as all information concerning the individual, such as schooling, physical rating, previous employment, and the training in various jobs with this company or with others. Each employe is interviewed at least twice a year. At these meetings he is given the opportunity to examine his record card and discuss with the division superintendent or his assistant any particular difficulties he may have experienced. If he has a

preference for certain work, it is recorded, both on the employment record and by cross-index under job heading, so that when a vacancy occurs he will be transferred accordingly. So far as possible, promotions are made in accordance with each individual's desires.

All the various kinds of work are classified, and vacancies in the higher classes of employment are filled from the ranks of those whose knowledge, earning capacity and desires fit them for such advancement. It is held that the personal preference of an employe for a particular kind of work is a very strong indication that he will prove satisfactory in that occupation. The company has in its employ about 2,500 people in the classes covered by this article and during 1921 over 700 transfers were made from one department to another in an effort to meet the desires and needs of individual employes for different kinds of work.

This is entirely aside from promotion within departments where have occurred vacancies which have been filled by advancement. New employes are, in consequence, practically always placed at jobs which are classified as least skilled, and only in the case of a few trades where apprenticeship has been served outside of the company's employ, are new people placed immediately in the more remunerative positions. It should be further mentioned here that new employes are placed under competent instructors, and are trained for the work they are to do until they receive the approval of those capable of deciding as to their fitness for regular production. Even after they have been turned over to the producing departments as accredited employes, their record is followed up until the Training Division is certain that they are satisfactorily located. After this, the follow-up interviews already mentioned tend to direct the employe's advancement

in accordance with his ability and desires. As noted above, changes in individual wages are made whenever the service records show they are justified. All service records are examined monthly to insure prompt recognition of any increase in ability.

Almost without exception, those who constitute the management in this company started at the bottom and worked up to their present responsibilities, having earned their promotion by ability alone. This policy of promotion from the ranks in *all possible* cases is considered to be of the greatest value in its influence on the morale of the organization.

It is believed that if wages offered are higher than those prevailing for similar kinds of work and are sufficient to maintain a comfortable standard of living, a larger number of high-grade people will desire to be connected with the organization offering these opportunities. From such applications for employment, it is to be expected that only the finest types will be accepted, and only the best will be retained.

Wages, however, are not the only attraction of the applicant for employment. The company's reputation for good working conditions, meaning all those conditions which vitally affect the employe—surroundings, instruction, continuous employment, opportunities for advancement or transfer to congenial work, individual consideration at all times—has a considerable influence on the minds of the more intelligent class of employes.

ANALYZING, GRADING AND VALUING OPERATIONS

The first thing done in the determining of wage-rates is to make a careful analysis of the various jobs within the organization. It is the experience of this company that it is not necessary to be continually making

new analyses of jobs. A fairly thorough job analysis was made in 1917, and has been checked up from time to time since that date. When changes in methods of work are instituted, the job analysis is modified to conform with the new condition. A considerable proportion of the operations are very thoroughly specified as a result of time study and rate setting. There are, however, a good many jobs, particularly in the warehousing and shipping departments as well as in the office, and also in what may be classified as service work in the producing departments, that have not as yet been analyzed by the time study and rate setting department. A careful job analysis is required for these jobs also, and the physical and mental qualifications they require need to be definitely indicated.

When this analysis work is completed, the next step is to obtain the "going rates" of wages for similar work. By "going rates" is meant the rates of pay in effect in similar industries in the general locality where the company is situated. This knowledge should be still further supplemented by reference to rates in effect for similar types of work in other parts of the country, and by reference to the cost of living in so far as it can be ascertained through published data. In the past this information has been obtained from:

United States Department of Labor;
Department of Labor and Industries
(Massachusetts); Union scales; Massachusetts Commission on Necessaries of Life; other industrial concerns.

In studying the relative wage-rates, all the various factors of the job analysis are considered, and great care and attention given to determining to what extent the various jobs within the organization compare with the class of work for which the "going rates" of wages have been obtained. For in-

stance, there are many cases where operations are peculiar to a given industry, to say nothing of the fact that even in any two concerns in the same industry similar work is not exactly comparable, owing to the different forms of organization in effect, and the variations in the method of operating. The employment or personnel manager should strive to *see* the operations and the conditions of work in other industrial concerns whose rates he is attempting to use for comparisons. However, the training or skill necessary, the agreeable or disagreeable character of the work, the possibilities for advancement, the hazards of the occupation, etc., are all carefully weighed in each and every case as the rate is computed. Operations that are paid by a production method of payment are indicated in the different classes of work as well as those paid on an hourly basis. The range of base rates and the class of piece-rate earnings applying to the different types of work are given. Of course there are not as many different classes of wages for those paid on the production plan as there are for those paid on hourly or weekly rates, each employee's productivity placing him more accurately in his particular relation to his fellows. There is, however, a considerable variation in base rates; and a variety of bonus rates applicable to different types of work.

In setting the wages for the different classes of work, it has been found to be a good plan to begin with the simplest types of work and make up rates for these first, and then advance, progressively, to the more difficult jobs.

When wages for each class of work have been compiled, they are considered by the division superintendents in conference. These division superintendents are assistants to the works manager and are responsible for the general oversight of the different pro-

ducing and service divisions of the factory and warehouse. At this conference, a considerable amount of criticism is usually forthcoming, and many helpful suggestions are made which tend to improve the classification and more clearly distinguish the different types of jobs. So far, a final unanimity has always been arrived at before taking any further steps in making up a classification. In every case where a general modification of wages has been made, it has first been submitted to the Works Committee for its approval or criticism.

The outline of wages proposed is made to show the general range suggested for all classes of work; for instance, the minimum, standard and maximum wages to be paid for a given operation, and the minimum apprenticeship period considered necessary before an individual could attain standard. It will be apparent that the actual rates of pay for any given group will include all variations between a minimum and a maximum according to the degree of experience and ability of each of the various employees.

The maximum is published only as a reasonable maximum for the work indicated. There are instances where in practice it is exceeded, but these cases are based on special merit and it is not considered necessary to insist upon this point in reaching an agreement as to general wage levels. The Works Committee have in the past appointed a subcommittee to study the wage classifications, and have themselves compared them with the "going rates" of wages as they have appeared in the publications that the management used; and as far as they have been able to, they have checked them up from personal knowledge or investigation. With comparatively few minor changes, the bases for wages outlined have been accepted.

[RECENT READJUSTMENTS OF BASIC WAGE-RATES

The wage bases determined in March 1921 in the manner described represented from 100 to 130 per cent increase (approximately) over 1913 levels. During the spring and summer months of 1921 the cost of living as reported by the Massachusetts Commission on Necessaries of Life began to show definite reductions, and in the latter part of June the management laid the situation before the Works Committee as follows:

The company feels that the time has come when they must reduce their employees in proportion to the general change in wage-rates, but in doing this, in the first place, the company will pay attention to the individual merit of its employees and only reduce those who are not able, by increased efficiency, to justify their present wage; and, in the second place, the range between the present maximums and minimums will be increased, thus allowing even those employees who are now at the old maximum to maintain their present wages if they can show premium ability sufficient to justify the margin by which their wage exceeds present wage standards.

Just how this can best be brought about we do not know. It is something that must be carefully worked out and applied sufficiently slowly so that it can be done with accuracy and fairness. The management is working now on plans to carry out this general policy, which it will submit to the Works Committee when completed, and will be glad to have the Works Committee, either directly or through a subcommittee, work on the same problem and propose plans for the execution of these policies, or make suggestions in regard to their execution.

A conference committee representing both the management and the Works Committee drew up plans by which the adjustment was accomplished in accordance with the policies outlined. The starting wages, or minimum and

standard wages, were in practically all cases reduced to conform more nearly with general wage levels. Maximum rates were maintained. Individual re-rating with the new wage-rates for basis was carried out within six weeks,

and although all had the privilege of questioning their final rating, either directly or through the Works Committee, only 14 out of 2,500 raised any question in regard to their standing after the readjustment.

Bases for Determining Wage-Rates: A Fair Day's Pay for a Fair Day's Work!

By R. M. HUDSON

Manager of Methods and Personnel, Holt Manufacturing Company

IN attaining the equity implied in the above title, there are two major points of view—that of the employer, who is to pay the wage, and that of the employe, who is to render the service. No wage agreement or adjustment was ever mutually satisfactory in which one of these viewpoints was underestimated, or lightly considered by the holder of the other. Industrial history is full of examples which prove the truth of this statement. Times change, but human nature is much the same today as it was when the wage system began. What every worker wants, regardless of his job, position, rank, or station, is an income that will satisfy his needs, his desires and his ambitions. Since it seems that no two of us have identically the same wants, tastes, desires, ambitions, or inclinations, is it any wonder, then, that we have made so little progress toward achieving a formula wherein wages and services are always balanced? This, however, should not deter us from striving to establish a method that will work with greater justice than any heretofore; rather, we should accept the evident lack of such a method as a challenge to do our utmost toward bringing about a more general understanding of what is a fair day's work in every industry or occupation, and what is a fair day's pay for that work.

THE EMPLOYEE'S VIEWPOINT

Since the rendering of a service precedes the payment therefor, let us consider the employe's viewpoint first. Work, to him, is primarily the means to an end. It is the medium through which he reaches a definite objective. That objective is first expressed in a living for himself and others dependent on him; after that, in a competence which shall insure him and those dependent on him against poverty and hardship in old age. And while the average worker is thus concerned about the present, and the relatively remote future, he is also interested in getting a certain amount of enjoyment out of life as he goes along. It is these three major interests that have the greatest influence in forming the conception, in each worker's mind, of what is a fair wage for his work. The compensation he wants is not based on the laws of supply and demand, though the compensation he gets, is! Therefore, employes as a class will never be satisfied with any method of determining wages which fails to regard their services as something more than a commodity.

THE PROBLEM CONFRONTING THE EMPLOYER

The employer, however, is not without his own desires, hopes and aspirations, and, no matter how fair-minded